APPENDIX D

Pollution Prevention Activity Plan

Implementation of the pollution prevention activities described below is essential to meeting goals for reducing waste generation.

D.1 Pollution Prevention Policy Direction Activities

D.1.1 Establish Goals to Minimize Waste Generation and Environmental Releases

Goal-setting is a fundamental requirement in any performance-based management system and is essential if DOE is to achieve significant reductions in waste generation and environmental releases. DOE managers can more effectively plan, organize, budget for, and execute programs to achieve actual reductions in waste generation when goals are set.

Goal-setting provides targets for reducing waste generation, standards for evaluating pollution prevention progress, and a framework for decision making. Accordingly, **each DOE site will set quantitative pollution prevention goals and develop plans for achieving those goals.** These goals will be compatible with the overall agency goals described in Section 3.2.2 of this plan.

D.1.2 Establish Senior Management Commitment and Follow-Through for DOE Pollution Prevention Activities

A successful DOE-wide pollution prevention program depends upon proactive leadership and hands-on management by DOE and contractor senior managers. All DOE Headquarters organizations, Operations Offices, DOE facilities, laboratories, and contractor organizations must exhibit commitment to pollution prevention. **The heads of these organizations will translate the Secretarial pollution prevention policy into policies specific to their sites or programs and will be accountable for incorporating them into routine operations.**

D.1.3 Distinguish Pollution Prevention Budget Allocations through Activity Data Sheets

Sufficient funding is an essential aspect of managing programs, measuring organizational commitment, and performing cost/benefit analyses. Currently, the Department is inconsistently funding pollution prevention through overhead accounts, programmatic accounts, and special project accounts. Expenditure levels for establishing and implementing site programs often are not known.

The Department must be able to distinguish pollution prevention funding from other programs and operations. Therefore, **specific budgets will be established through preparation of separate Activity Data Sheets for pollution prevention activities.** These Activity Data Sheets will be included in and tracked by the ES&H Management Plan to evaluate investment in pollution prevention across the Department.

D.1.4 Promote Regulatory Review and Provide Technical Assistance

Federal and State environmental regulations and standards provide significant benefits to the public, but can sometimes hinder pollution prevention initiatives. For example, due to the lack of a “de minimis” criterion, DOE often classifies much of its municipal waste as radioactive and much of its hazardous waste as mixed. This results in the need for expensive treatment and disposal for wastes that could otherwise be recycled, reused, or handled by commercial treatment and disposal facilities.

Risks associated with hazardous and radioactive waste need to be evaluated considering the latest scientific evidence. **The Department will seek opportunities to provide technical assistance to those formulating Federal and State environmental regulations. The Department will seek to promote cost-effective pollution prevention actions as opposed to expensive waste treatment, storage, and disposal practices.**

D.1.5 Consistent DOE Policies and Procedures to Integrate Pollution Prevention

Various DOE guidance documents and directives may inadvertently create barriers to pollution prevention. Examples of these include security issues with recycling, the inability to substitute materials due to restrictive standard operating procedures, and a focus on pollution control versus pollution prevention. Applicable DOE policies and Orders must be updated to outline pollution prevention roles and responsibilities, develop consistent procedures, and create an environment to resolve internal conflicts over such matters. Therefore, **DOE policies and procedures will be updated to reflect the Department's and the Administration's focus on integrating pollution prevention objectives into all activities.**

D.2 Pollution Prevention Infrastructure Development

D.2.1 Establish Clear and Accountable Performance Measures

Performance measures can be established when standardized material and waste tracking systems are developed. Quantitative measurements of DOE's pollution prevention progress are difficult because of the variety of waste generating activities, such as production, laboratory experimentation, and environmental restoration. DOE currently lacks the ability to fully track across multiple sites the amounts of waste generated and pollutants released as a result of its activities. Required data often are gathered manually through time consuming and expensive "data calls" to the field. Definition and interpretation issues often restrict the value of the final roll-up information. Performance measures for pollution prevention must be developed and applied consistently throughout all DOE organizations for the data to be valid and useful for the complex. To assist in this task, **the Department will develop standards and criteria to measure materials and wastes and provide performance requirements for material and waste tracking systems.** This will provide DOE managers with the information needed to establish meaningful goals for reducing waste generation and environmental releases, evaluate progress, and evaluate compliance with regulatory and Departmental drivers.

D.2.2 Analyze Pollution Prevention Costs and Benefits for Use In Decision Making

Currently, DOE does not know the full costs (direct plus hidden costs) of managing the Department's many individual waste streams and emissions, and associated loss of production efficiency due to excess energy and material usage. Material and waste management costs, including those paid by generators, must be estimated if DOE decision makers are to properly balance the benefits of applying pollution prevention versus the costs to continue operations without process improvements. DOE decisions on how best to manage existing and future waste streams must be made with a full understanding of future cost liability if DOE is to minimize the total cost to the taxpayers.

The Department will develop standards for estimating the costs and benefits of introducing pollution prevention into its operations. Economic analyses will provide a more thorough picture of waste generation versus costs of implementing pollution prevention for more informed Departmental decision making.

D.2.3 Facilitate Pollution Prevention Technology Transfer and Information Exchange

Effective technology transfer and information exchange provides updated information to each DOE site on pollution prevention opportunities and efficient methods for implementation. This leverages Departmental resources by providing more comprehensive knowledge of pollution prevention opportunities, reduces duplication of effort, and allows sites to benefit from lessons learned at other sites. A model site program will be developed to demonstrate outstanding environmental management performance within the Department to enhance and expedite pollution prevention technology transfer and information exchange. **The Department will enhance existing systems to optimize technology transfer and information exchange within the DOE complex** to provide consistent application of pollution prevention opportunities. The Department will also cooperate with other Federal, State, and local agencies, and industry to share pollution prevention technologies and information.

D.2.4 Develop a DOE Pollution Prevention Incentives Program

Incentives are necessary to stimulate and maintain interest in changing processes and activities. Providing budgetary incentives within the Department is difficult because waste management is funded by the EM organization as a service to all other waste generating organizations. Consequently, waste generators are not directly charged for waste management costs, nor do they financially benefit from reducing waste generation and environmental release rates. Without incentives, beneficial changes in generator facilities might not be made if there are no immediate avoided costs to the generator. To help remedy that situation, **the Department will acknowledge and reward reductions in waste generation and environmental releases** made by the responsible line organizations.

D.2.5 Develop and Conduct Pollution Prevention Employee Training and Awareness Programs

Employee pollution prevention training is integral to increasing awareness of environmental issues and the positive effects each employee can have on the environment. DOE has found it particularly difficult to reach and educate all DOE and contractor employees who generate hazardous, radioactive, mixed, and or municipal waste in their day-to-day activities. Adoption of pollution prevention practices by all management levels and the work force requires effective training programs that articulate program requirements and benefits.

The goal is to make each DOE and contractor employee aware of waste generation, its impact on the site and the environment, and ways resources may be conserved and waste generation and environmental releases reduced. **The Department will operate a comprehensive pollution prevention training program that considers all applicable job-specific situations** to achieve this goal.

D.2.6 Develop and Implement a Pollution Prevention Outreach and Public Involvement Program

The public understands that effective application of pollution prevention promotes health, safety, and environmental quality. Keeping stakeholders informed of DOE's progress will build public confidence and institutional credibility. **The Department will involve stakeholders and local communities in pollution prevention programs and invite them to participate in emergent environmental activities and initiatives.** DOE must have a visible and active program if it wishes to convince the public that it will protect future generations as it cleans up the waste of the past

and responsibly manages new waste-generating activities.

D.3 Pollution Prevention Program Implementation

D.3.1 Develop and Maintain Site Pollution Prevention Programs that Comply with Federal, State, and Departmental Directives

Certain site activities must be performed at all sites regardless of the pollutant or waste types generated or the number of generator organizations. Such activities include site-wide coordination, planning, reporting, training, employee awareness, assessments, and recycling and affirmative procurement programs. **The Department will develop core pollution prevention activities and services at every site.** Figure D.3.1 contains the key elements of a site-wide program. These elements and sub-elements may be considered tasks and sub-tasks of a site-wide program.

Currently, DOE's site-wide pollution prevention programs are constrained due to uncertainty over which DOE line organization (EM, the landlord, waste generator) is responsible for funding and managing these activities. **DOE will clarify its organizational roles and responsibilities to ensure stable funding and consistent management of site pollution prevention programs that comply with applicable Federal, State, and Departmental directives.**

D.3.2 Develop and Maintain Consistent Generator-Specific Programs

Waste generator organizations must implement essential process, material, and capital equipment changes and waste avoidance techniques within operating facilities to achieve real and substantial reductions in DOE's waste generation rates. Senior management leadership is particularly needed today to accomplish this mission within the Department. Generators must perform opportunity assessments to identify pollution prevention opportunities. Generators must also plan and budget for cost-effective changes in their operations and include pollution prevention programs within their multi-year program plans.

Key elements of a generator-specific program include program management and coordination, planning and training, performance of opportunity assessments, implementation of pollution prevention techniques, goal-setting and tracking, and program progress evaluation. **The Department will require waste generating organizations to include appropriate pollution prevention concepts and techniques in their program operations and other activities such as weapons disassembly, stabilization, deactivation, and environmental restoration.** Figure D.3.2 contains the key elements of a generator-specific program. These elements and sub-elements may be considered tasks and sub-tasks of a generator-specific program.

D.3.3 Perform Opportunity Assessments and Implement Pollution Prevention Projects

In addition to meeting its immediate environmental regulatory requirements, the Department has a responsibility to the public to reduce future pollution associated with waste generated today. Opportunity assessments provide the first step in identifying cost-effective techniques to reduce waste generation and pollutants. An opportunity assessment involves an in-depth examination of processes, operations, and procedures and assists in identifying pollution prevention projects that will yield a quick return on investment. **The Department, acting to minimize total costs, will perform opportunity assessments and identify and implement projects that show a rapid (within 36 months) return on investment.**

Site Pollution Prevention Program

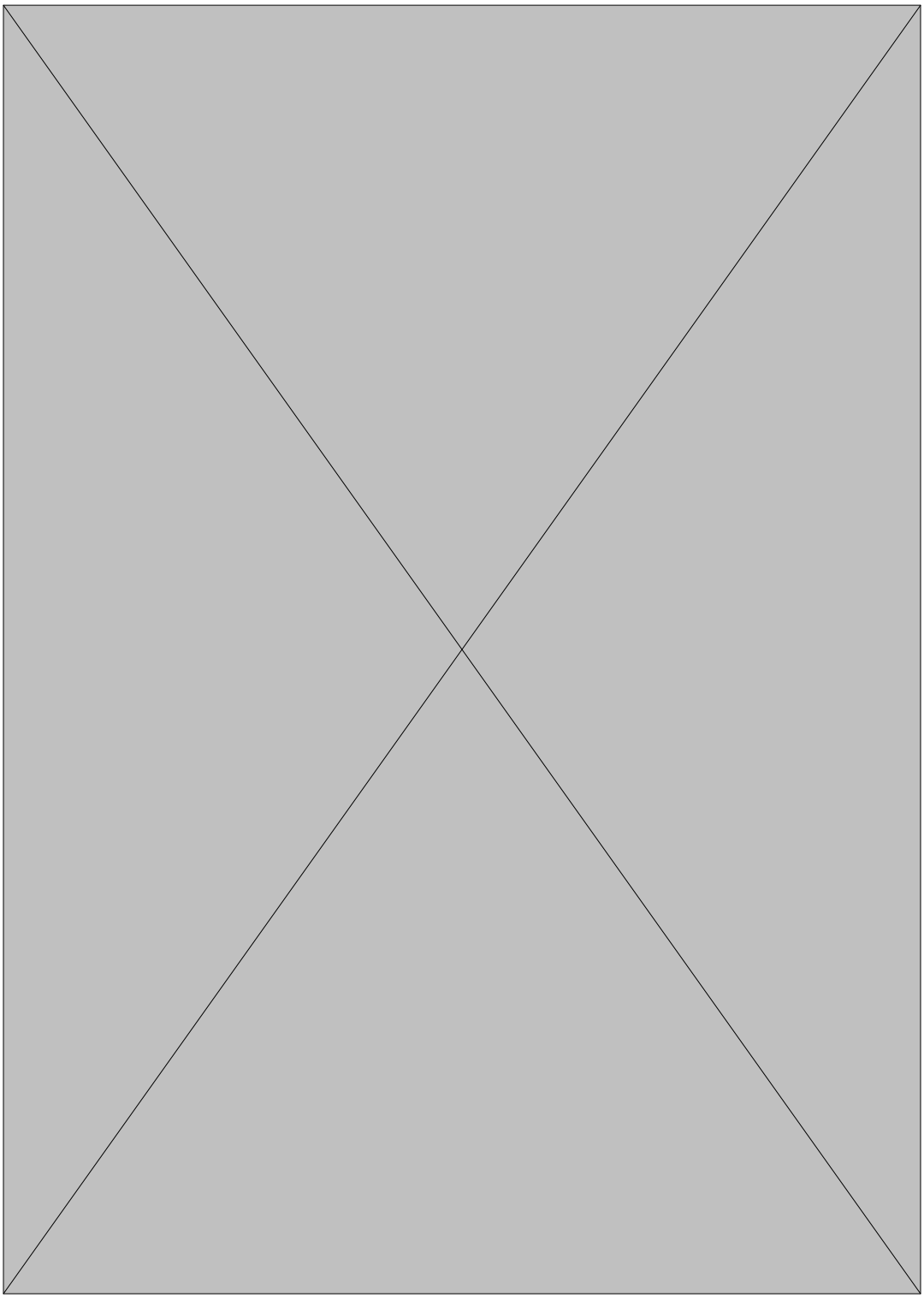

Figure D.3.1 Key Elements of a Compliant Site Pollution Prevention Program

Generator-Specific Pollution Prevention Program

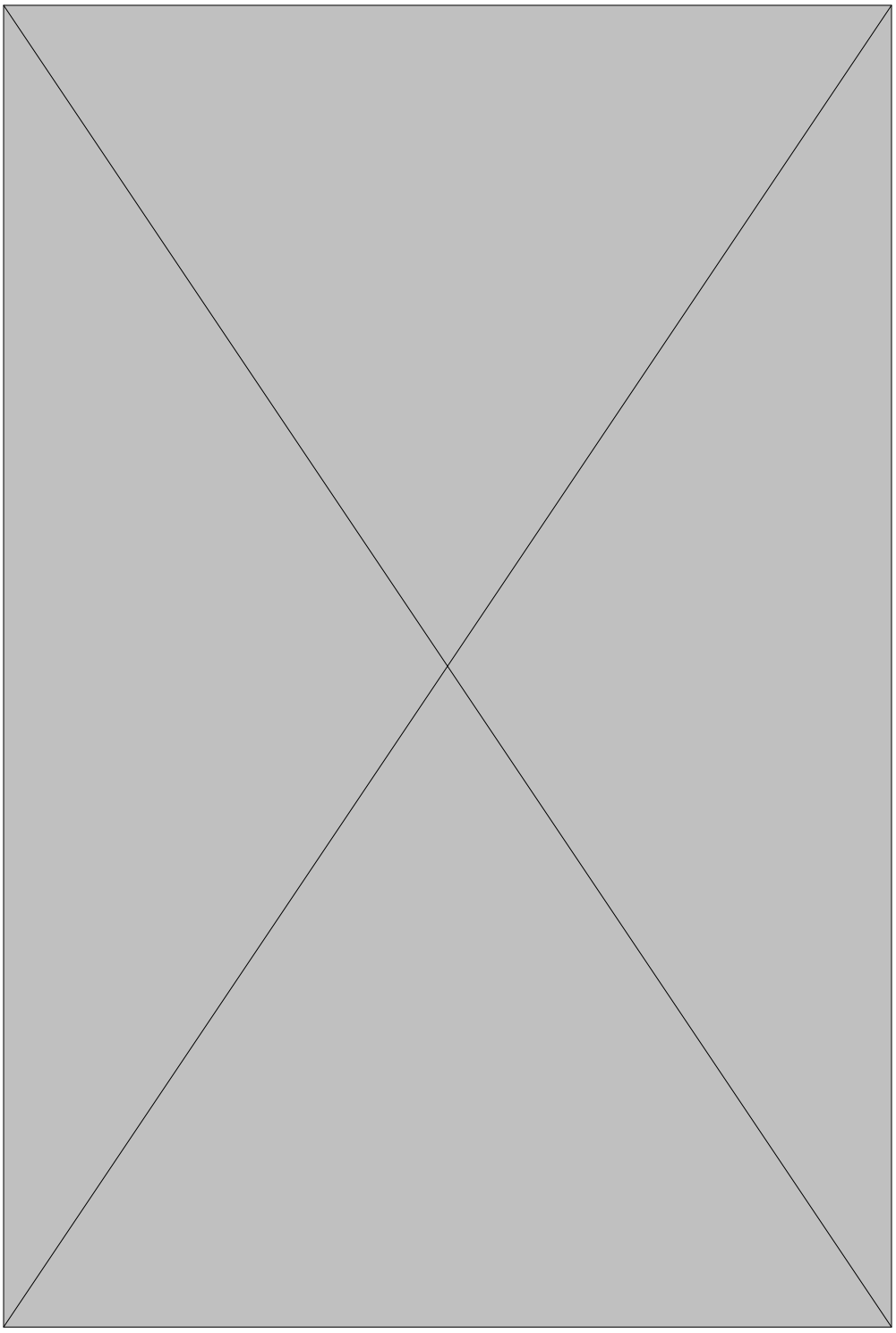

Figure D.3.2 Key Elements of a Generator Specific Pollution Prevention Program

D.3.4 Design Pollution Prevention into New Products, Processes, and Facilities

Engineering design is a critical component of DOE's products, processes, and facilities. It is estimated that 70 percent or more of the opportunity to reduce or eliminate pollutants exists during design. Designing pollution prevention into new DOE products, processes, and facilities prevents or greatly reduces environmental releases, promotes efficient energy and materials use, and leads to lowest agency life-cycle costs. This effort is also known as "Design for the Environment."

The Department will integrate Pollution Prevention into all new design criteria. Resource efficiency will be considered a priority in all new designs or redesigns for products, processes, and facilities. Pollution prevention considerations will be included in preparation of environmental assessments and environmental impact statements under NEPA.

D.3.5 Integrate Pollution Prevention into Research, Development, Demonstration, Test, and Evaluation Projects

The Department faces significant technical hurdles, particularly for its mixed and radioactive waste streams, that will continue to impede waste management progress and increase costs until satisfactory technical solutions are developed. Applying pollution prevention research, development, demonstration, test, and evaluation (RDDT&E) solutions to critical areas of need is essential because of the size and technical challenges of the Department's waste management program. **The Department will integrate waste generation and RDDT&E to ensure that pollution prevention RDDT&E projects offering the greatest technical benefit are available to generator organizations.**

D.3.6 Modify Procurement Practices to Promote Pollution Prevention

As a significant purchaser of materials and equipment, **the Department will promote the purchase of less toxic, more durable, more energy efficient materials,** including products composed of recovered materials, for its own operations. The Department will ensure the use of environmentally sound practices in the procurement process including updating user specifications, contracts, and policies. This will ensure that DOE and its contractors act according to existing Federal, State and local regulations, and DOE Orders and policies. Special priority within this activity will be given to meeting the requirements of Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," Executive Order 12843, "Procurement Requirements and Policies for Ozone-Depleting Substances," and Executive Order 12873, "Federal Acquisition, Recycling, and Waste Prevention."

D.3.7 Reduce Releases of Toxic Chemicals

The Department will reduce the releases and offsite transfers of TRI chemicals 50 percent by December 31, 1999. All sites that meet the EPCRA toxic chemical use reporting thresholds will submit to EPA TRI Form Rs on each applicable chemical. Sites that did not submit TRI Reports in the past due to their Standard Industry Classification Code status began reporting with 1993 data. Each site will participate in reducing TRI chemical releases to ensure Departmental compliance with Executive Order 12856. The baseline year for measuring DOE-wide reductions under the Executive Order is 1993.